

CLAIMS

What is claimed is:

- 1 1. A method comprising:
2 receiving a data segment representing a digitized segment of voice data associated
3 with a voice channel;
4 assigning a unique segment ID to the voice channel associated with the digitized
5 segment of voice data; and
6 arranging a set of four segment IDs and a corresponding set of four data segments
7 into a quad segment so that the four segment IDs and each of the four data segments are
8 explicitly aligned on an eight-byte boundary.
- 1 2. The method of claim 1, further comprising:
2 prepending a local area network (LAN) header to the quad segment to create a
3 multi-channel voice packet; and
4 transmitting the multi-channel voice packet over a local area network (LAN).
- 1 3. The method of claim 2, wherein the LAN is an Ethernet, and the LAN header is a
2 media access control (MAC) header.
- 1 4. The method of claim 2, wherein the LAN is an InfiniBand ® system network.

1 5. The method of claim 2, further comprising aggregating as many quad segments
2 into the multi-channel voice packet as possible so that a size of the multi-channel voice
3 packet does not exceed the maximum size for the LAN.

1 6. The method of claim 1, wherein the digitized segment of voice data is at least one
2 sample of pulse-code modulated (PCM) voice data.

1 7. The method of claim 6, wherein the at least one sample of PCM voice data is one
2 byte in length and represents substantially 125 microseconds of voice data.

1 8. The method of claim 6, wherein the digitized segment of voice data comprises
2 eight samples of PCM voice data for a total of eight bytes in length.

1 9. The method of claim 1, wherein the data segment is obtained from a time-division
2 multiplexed (TDM) stream of voice data.

1 10. The method of claim 1, wherein the data segment is obtained from a
2 asynchronous transfer multiplexed (ATM) stream of voice data.

1 11. The method of claim 1, wherein the data segment is obtained from a payload of a
2 data packet.

1 12. The method of claim 11, wherein the data packet is an Real Time Protocol (RTP)
2 packet.

1 13. The method of claim 1, wherein the unique segment ID is 2 bytes in length, the
2 unique segment ID explicitly identifying the voice channel without reference to other
3 data.

1 14. A computer-readable medium having executable instructions to cause a computer
2 to perform a method comprising:
3 receiving a data segment representing a digitized segment of voice data associated
4 with a voice channel;
5 assigning a unique segment ID to the voice channel associated with the digitized
6 segment of voice data; and
7 arranging a set of four segment IDs and a corresponding set of four data segments
8 into a quad segment so that the four segment IDs and each of the four data segments are
9 explicitly aligned on an eight-byte boundary.

1 15. The computer-readable medium of claim 14, wherein the method further
2 comprises:
3 prepending a local area network (LAN) header to the quad segment to create a
4 multi-channel voice packet; and
5 transmitting the multi-channel voice packet over a local area network (LAN).

1 16. The computer-readable medium of claim 15, wherein the LAN is an Ethernet, and
2 the LAN header is a media access control (MAC) header.

1 17. The computer-readable medium of claim 15, wherein the LAN is an InfiniBand ®
2 system network.

1 18. The computer-readable medium of claim 15, wherein the method further
2 comprises aggregating as many quad segments into the multi-channel voice packet as
3 possible so that a size of the multi-channel voice packet does not exceed the maximum
4 size for the LAN.

1 19. The computer-readable medium of claim 14, wherein the digitized segment of
2 voice data is at least one sample of pulse-code modulated (PCM) voice data.

1 20. The computer-readable medium of claim 19, wherein the at least one sample of
2 PCM voice data is one byte in length and represents substantially 125 microseconds of
3 voice data.

1 21. The computer-readable medium of claim 20, wherein the digitized segment of
2 voice data comprises eight samples of PCM voice data for a total of eight bytes in length.

1 22. The computer-readable medium of claim 14, wherein the data segment is obtained
2 from a time-division multiplexed (TDM) stream of voice data.

1 23. The computer-readable medium of claim 14, wherein the data segment is obtained
2 from a asynchronous transfer multiplexed (ATM) stream of voice data.

1 24. The computer-readable medium of claim 14, wherein the data segment is obtained
2 from a payload of a data packet.

1 25. The computer-readable medium of claim 24, wherein the data packet is an Real
2 Time Protocol (RTP) packet.

1 26. The computer-readable medium of claim 14, wherein the unique segment ID is 2
2 bytes in length, the unique segment ID explicitly identifying the voice channel without
3 reference to other data.

1 27. An apparatus comprising:
2 a data segment receiver to receive a data segment having a digitized segment of
3 voice data;
4 a voice channel identifier to determine which of a plurality of voice channels is
5 associated with the data segment and to generate an associated segment ID;
6 a data segment aggregator to arrange a set of four contiguous segment IDs
7 followed by a corresponding set of four contiguous data segments into a quad segment so
8 that the set of four contiguous segment IDs and each of the four contiguous data
9 segments of the quad segment are explicitly aligned on an eight-byte boundary.

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1 28. The apparatus of claim 27, further comprising:
2 a multi-channel voice packet generator to prepend a local area network (LAN)
3 header to the quad segment to create a multi-channel voice packet; and
4 a packet transmitter to transmit the multi-channel voice packet over a local area
5 network (LAN).

1 29. The apparatus of claim 28, wherein the LAN is an Ethernet, and the LAN header
2 is a media access control (MAC) header.

1 30. The apparatus of claim 28, wherein the LAN is an InfiniBand ® system network.

1 31. The apparatus of claim 28, wherein the multi-channel voice packet generator
2 further aggregates as many of the quad segments into the multi-channel voice packet as
3 possible so that a size of the multi-channel voice packet does not exceed the maximum
4 packet size for the LAN.

1 32. The apparatus of claim 28, wherein the digitized segment of voice data is at least
2 one sample of pulse-code modulated (PCM) voice data.

1 33. The apparatus of claim 32, wherein the at least one sample of PCM voice data is
2 one byte in length and represents substantially 125 microseconds of voice data.

1 34. The apparatus of claim 32, wherein the digitized segment of voice data comprises
2 eight samples of PCM voice data for a total of eight bytes in length.

1 35. The apparatus of claim 27, wherein the data segment is obtained from a time-
2 division multiplexed (TDM) stream of voice data.

1 36. The apparatus of claim 27, wherein the data segment is obtained from an
2 asynchronous transfer multiplexed (ATM) stream of voice data.

1 37. The apparatus of claim 27, wherein the data segment is obtained from a payload
2 of a data packet.

1 38. The apparatus of claim 37, wherein the data packet is a Real Time Protocol (RTP)
2 packet.

1 39. The apparatus of claim 27, wherein the segment ID is 2 bytes in length, the segment
2 ID explicitly identifying the voice channel without reference to other data.

1 40. A computer-readable medium having stored thereon a data structure, the data
2 structure comprising:

3 a segment ID representing an identification of a voice channel; and

4 a data segment representing a digitized segment of voice data associated with the
5 voice channel, wherein the segment ID and the data segment are each positioned to align on
6 an 8-byte boundary.

1 41. The computer-readable medium of claim 40, wherein four consecutive segment IDs
2 are followed by four corresponding consecutive data segments to form a quad segment,
3 wherein the quad segment is positioned so that the four segment IDs together align on an 8-
4 byte boundary and each of the corresponding four data segments align on an 8-byte
5 boundary.

1 42. The computer-readable medium of claim 41, wherein the data structure further
2 comprises a local area network (LAN) header representing a destination address associated
3 with the voice channel.

1 43. The computer-readable medium of claim 41, wherein the segment ID is 2 bytes in
2 length, the segment ID explicitly identifying the voice channel without reference to other
3 data.

1 44. The computer-readable medium of claim 42, wherein the data structure comprises as
2 many of the quad segments as possible without exceeding the maximum length allowed for
3 the LAN associated with the LAN header.

1 45. A method comprising:
2 means for receiving a data segment representing a digitized segment of voice
3 data;
4 means for assigning a unique segment ID to the voice channel associated with the
5 digitized segment of voice data; and
6 means for arranging a set of four segment IDs and a corresponding set of four
7 data segments into a quad segment so that the four segment IDs and each of the four data
8 segments are explicitly aligned on an eight-byte boundary.

1 46. The method of claim 45, further comprising:
2 means for prepending a local area network (LAN) header to the quad segment to
3 create a multi-channel voice packet; and
4 means for transmitting the multi-channel voice packet over a local area network
5 (LAN).

1 47. The method of claim 46, wherein the LAN is an Ethernet, and the LAN header is
2 a media access control (MAC) header.

1 48. The method of claim 47, further comprising means for aggregating as many of the
2 quad segments into the multi-channel voice packet as possible so that a size of the multi-
3 channel voice packet does not exceed the maximum packet size on the LAN.